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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/348,865	07/07/1999	EITAN MEDINA	MP0107	5861

23624 7590 11/04/2003

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EXAMINER

ABELSON, RONALD B

ART UNIT PAPER NUMBER

2666

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/348,865

Applicant(s)

MEDINA ET AL.

Examiner

Ronald Abelson

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,3,16,17,27 and 28 is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7,8,14,15,18,19,25 and 26 is/are rejected.
- 7) ☒ Claim(s) 9-13 and 20-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 July 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 2666

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 7, 8, 14, 18, 19, and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Daines (US 6,192,422) in view of Calvignac (US 6,370,148).

Regarding claims 7 and 18, Daines teaches a method and apparatus for a crossbar (fig. 2 box 10) communicating with at least one device (fig. 2 node 14, col. 4 lines 41-44).

Each crossbar comprises N ports (fig. 2: Port A..N).

Each port comprises a link logic unit to receive messages and data from a respective device (fig. 2 box 18, col. 4 lines 53-55).

Each port comprises an input buffer to store data from the respective device (fig. 2 box 20).

Each port comprises a port arbiter to select one of the N-1 ports to output data to (fig. 2 box 25, 26, col. 5 lines 25-40).

Art Unit: 2666

Each input buffer transfers the stored data to one of the other said N ports (fig. 2 box 20, col. 5 lines 6-15).

Daines fails to teach N-1 output buffers each corresponding to N-1 ports.

Calvignac teaches N-1 buffers (fig. 1 box 120 a..d) corresponding to N-1 ports (fig. 1 A..D) and an arbitrator (fig. 1 box 110).

Therefore it would have been obvious to one of ordinary skill in the art, having both Daines and Calvignac before him/her and with the teachings [a] as shown by Daines, a crossbar communicating with at least one device, and [b] as shown by Calvignac, N-1 buffers corresponding to N-1 ports and an arbitrator, to be motivated to modify the system of Daines by replacing a single output buffer (fig. 2 box 24) and a centralized arbiter (fig. 2 box 26) with N-1 output buffers and an arbiter for each port. This would improve the system by allowing for more than one input buffer to communicate over the bus at a time. At present only one input buffer to communicate over the bus at a time (Daines: col. 5 lines 30-40).

As seen above, the examiner corresponds the applicant's crossbar (fig. 2 box 10M) with the repeater (fig. 2 box 10) of Daines. As seen by Newton, a crossbar is a simply a means for transferring inputs to outputs.

Art Unit: 2666

Regarding claims 8 and 19, the link logic unit determines a type of message from the respective device (col. 4 lines 60-62). In order for the MAC to convert the digital data to an Ethernet frame, the MAC must know what type of data exists.

Regarding claims 14 and 25, although Daines is silent on if the device is unable to receive data, the device provides a message to the link logic means, the inventor teaches the inhibiting signal in the reverse direction (col. 7 lines 5-13). It would be logical to have inhibiting signals traveling in both directions. Just as in port input buffer is monitored, the node's buffer could be monitored for an overflow condition. If this condition is met, the device could send an inhibit signal to the port. Then the link logic means (fig. 2 box 18) would inform the arbiter (fig. 2 box 25) to inhibit communication. This would improve the system by preventing the device (fig. 2 box 14) from overflowing.

3. Claims 1, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daines (US 6,192,422) in view of Calvignac (US 6,370,148) and Ogimoto (US 6,032,205).

Art Unit: 2666

Regarding claim 1, the combination of Daines and Calvignac teaches all the elements of claim 1 (see office action for claim 7) except a plurality of N-1 of fullness sensors, each associated with one port output buffer, for measuring the fullness state of its associated port output buffer, and a shutoff means, indicating to said device connected to said one port not to send data for the port

Ogimoto teaches a plurality of N-1 of fullness sensors, each associated with one port output buffer, for measuring the fullness state of its associated port output buffer (fig. 1 box 122-125, col. 13 lines 43-49); and a shutoff means, indicating to said device connected to said one port not to send data for the port (col. 13 lines 43-49).

Therefore it would have been obvious to one of ordinary skill in the art, having both the combination of Daines and Calvignac and Ogimoto before him/her and with the teachings [a] as shown by the combination of Daines and Calvignac, a method and apparatus for a crossbar/repeater communicating with at least one device, and [b] as shown by Ogimoto, a plurality of N-1 of fullness sensors, each associated with one port output buffer, for measuring the fullness state of its associated port output buffer, and a shutoff means, indicating to said device connected to said one port not to send data for the port, to be

Art Unit: 2666

motivated to modify the system of the combination of Daines and Calvignac by connecting the output buffer monitoring circuit of Ogimoto to each of the output buffers of Daines. This would improve the system by preventing overflow in the output buffers.

Regarding claim 4, a port arbiter to control the transmission of data to the respective device (Daines: fig. 2 box 25, col. 5 lines 25-27). Regarding the limitation providing messages only if the device is not full, it is obvious not to send data to a device that is full. If the device is full, it cannot process more information.

Regarding claim 5, each port comprises a bus link connected to the device (Daines: fig. 2 element 16).

4. Claims 15 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Daines and Calvignac as applied to claims 7 and 18 above, and further in view of and Ogimoto.

The combination of Daines and Calvignac is silent on if an nth one of the N-1 output buffers is at least a predetermined capacity, a signal is sent to the nth one of the port arbiter of the other of the N-1 ports to inhibit further transmission.

Art Unit: 2666

Ogimoto teaches a plurality of N-1 of fullness sensors, each associated with one port output buffer, for measuring the fullness state of its associated port output buffer (fig. 1 box 122-125, col. 13 lines 43-49); and a shutoff means, indicating to said device connected to said one port not to send data for the port (col. 13 lines 43-49).

Therefore it would have been obvious to one of ordinary skill in the art, having both the combination of Daines and Calvignac and Ogimoto before him/her and with the teachings [a] as shown by the combination of Daines and Calvignac, a method and apparatus for a crossbar/repeater communicating with at least one device, and [b] as shown by Ogimoto, a plurality of N-1 of fullness sensors, each associated with one port output buffer, for measuring the fullness state of its associated port output buffer, and a shutoff means, indicating to said device connected to said one port not to send data for the port, to be motivated to modify the system of the combination of Daines and Calvignac by connecting the output buffer monitoring circuit of Ogimoto to each of the output buffers of Daines. This would improve the system by preventing overflow in the output buffers.

Allowable Subject Matter

5. Claims 2, 3, 16, 17, and 27-28 allowed.
6. Claims 9-13 and 20-24 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter.

Regarding claims 2, 17, and 28, nothing in the prior art of the record teaches or fairly suggests each device additionally comprises N-1 device output buffers, one per the N-1 other ports of the crossbar, in combination with the other limitations listed in the claim.

Regarding claims 9, 10, 20, 21, nothing in the prior art of the record teaches or fairly suggests neither a local link message nor a switch link message, in combination with the other limitations listed in the claim.

Regarding claims 11 and 22, nothing in the prior art of the record teaches or fairly suggests the device being a switch or a second crossbar, in combination with the other limitations listed in the claim.

Regarding claims 16 and 27, nothing in the prior art of the record teaches or fairly suggests a network switch in

Art Unit: 2666

communication with one port of a crossbar having N ports where the network switch comprises N-1 output buffers, each corresponding to N-1 other ports of the N ports of the crossbar. The prior art of record, Daines teaches a network node, such as a computer (fig. 2 box 14, col. 4 lines 41-44) in communication with one port of a crossbar having N ports where the network switch comprises N-1 output buffers, each corresponding to N-1 other ports of the N ports of the crossbar.

Response to Arguments

7. Applicant's arguments with respect to independent claims 1, 7, 18 have been considered but are moot in view of the new ground(s) of rejection. The examiner agrees with the applicant that the prior office action fails to teach at least one crossbar including N ports, with the ports including N-1 output buffers, each corresponding to another of the N-1 ports (applicant: pg. 12 lines 3-6). Therefore, a new search was performed.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald

Art Unit: 2666

Abelson whose telephone number is (703) 306-5622. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.

ra
Ronald Abelson
Examiner
Art Unit 2666

October 27, 2003



DANGTON
PRIMARY EXAMINER